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Structuralism, post-structuralism, and the library: de Saussure and Foucault

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Abstract

Purpose – Explores the relevance of structuralism and post-structuralism to the field of library and information science (LIS).

Design/methodology/approach – The paper is a literature-based conceptual analysis of the two philosophical movements, structuralism and post-structuralism, as represented by the seminal figures of Ferdinand de Saussure and Michel Foucault.

Findings – The principles of structuralism and post-structuralism have significant implications for how the role of the modern library can and should be viewed.

Originality/value – Provides insights into LIS by drawing on philosophical perspectives that are beyond the LIS literature.

Keywords Philosophy, Information science, Libraries

Paper type Conceptual paper

Introduction

Structure, structuralism, and post-structuralism

This paper seeks to provide a gateway to new avenues of inquiry and to provide fresh insights for investigating and conceptualizing the field of library and information science (LIS). It describes the principles of structuralism and post-structuralism, illustrating these descriptions with literary examples to clarify these models, and discusses their relevance to LIS. To begin, in looking at the origin of the term "structure," one finds that the term initially had an architectural meaning. It referred to the "action, practice, or process of building or construction" and "the way in which an edifice, machine, implement, etc. is made or put together" (*The Oxford English Dictionary*, 1933, Vol. X, p. 1165). In the seventeenth and eighteenth centuries, the use of the term broadened and came to describe the ways in which the parts of a concrete being are structured into a whole. This concept could apply to a variety of structures, including anatomical, geological, and mathematical. In biology, for example, structure was used to describe the component parts of an animal and how these parts were mutually connected and interdependent on one another.

The application of the notion of structure to language and the social sciences in general came from developments in the field of linguistics through the seminal *Course in General Linguistics* of Ferdinand de Saussure (1983), the founder of structural

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linguistics (see Dosse, 1997). The heart of de Saussure's linguistics is the following proposition:

> A language is a system in which all the elements fit together, and in which the value of any one element depends on the simultaneous coexistence of all the others (de Saussure, 1983, p. 113).

Harris (1983, p. ix) writes that de Saussure's connection of language and structure enabled the *Course* to occupy "a place of unique importance in the history of Western thinking" and to become a key text "not only within the development of linguistics but also in the formation of that broader intellectual movement of the twentieth century known as 'structuralism'".

In the *Course*, de Saussure (1983) proposed a scientific model of language as a closed system of elements and rules that could be described quite independently from the psychological subjectivity of any particular user of that language. For example, if de Saussure were to consider this paragraph of text, he would not be concerned with the particular and unique thoughts the authors are attempting to commit to paper, or even the particular words that appear before the reader's eyes. Rather, de Saussure would attempt to describe the language system that both authors and readers must hold in common to make this particular example of communication possible and, in particular, the rules by which such a system is governed.

Post-structuralism not only questions, but also continues, the central project of structuralism – the inquiry into the organizing principles of a language system. However, while structuralism posits that the language system can be described in an objective and scientific manner, post-structuralism suggests that such descriptions are themselves always highly contextual. Whereas de Saussure's structuralism was confident that the principles by which language is organized can be fully determined and described, post-structuralism calls into question all such assumptions and suggests that such conclusions are always fragile and open to subversion.

In this discussion of the principles of structuralism and post-structuralism, two figures are selected as representative of each approach: Ferdinand de Saussure and Michel Foucault. The principles of both theorists are described through extensive use of literary examples, including Jorge Luis Borges' short story "The Library of Babel," Ian Fleming's novel *Casino Royale*, Sylvia Nasar's biography of John Nash, and Oliver Sack's account of a man who regained his sight after 40 years of blindness. The article ends with a discussion of how these principles offer new intellectual tools for understanding the nature and place of the library in a postmodern world. We begin with a discussion of de Saussure's structuralism and, in particular, the emphasis placed on the creation of patterns.

The primacy of patterns

Creating patterns at the Casino Royale

The key to understanding de Saussure's structuralism is the idea that meaning is made possible by patterns rather than by some correspondence between "a name and a thing" (de Saussure, 1983, p. 66). To demonstrate this idea, we turn to one of the most famous students of patterns in modern popular culture: Ian Fleming's character of James Bond 007. In his novel *Casino Royale*, Fleming (1953, p. 58) describes Bond standing at the roulette table at the Royale-les-Eaux casino:

> Bond … studied the run of the ball since the session had started at three o'clock that afternoon. He always did this although he knew that each turn of the wheel, each fall of the ball into a numbered slot, has absolutely no connection with its predecessor. He accepted that the game begins afresh each time the croupier picks up the ivory ball with his right hand, gives one of the four spokes of the wheel a controlled twist clockwise with the same hand and, with a third motion, also with the right hand, flicks the ball round the outer rim of the wheel anti-clockwise, against its spin.

The European roulette wheel consists of 36 numbers (18 red and 18 black) and one zero (the American roulette wheel adds the double-zero). The players bet on which of these numbers will hit when the ivory ball falls into a numbered slot. So how does Bond choose the numbers for his bets? Ironically, he looks to the very connections he knows not to exist; the wheel's history of previous spins. As Fleming (1953, p. 58) describes:

> It was obvious that all this ritual and all the mechanical minutiae of the wheel, of the numbered slots and the cylinder, had been devised and perfected over the years so that neither the skill of the croupier or any bias in the wheel could affect the fall of the ball. And yet it is a convention among roulette players, and Bond rigidly adhered to it, to take careful note of the past history of each session and to be guided by any peculiarities in the run of the wheel.

Bond uses his knowledge of the history of the session to "see" the sequence of numbers and thus to derive some sense of which numbers are "due" to hit. For example, Bond might observe that five red numbers have hit in the five previous spins. He may ask himself: What are the chances of that streak extending to six? Or seven? Bond might reason that the next spin must surely be a black number even though he knew perfectly well that this type of reasoning was illusionary. In true structuralist style, Bond knows there is no value in the result of any particular spin. The value of any number can only be given to it after it has occurred by some observer creating those patterns. Every new number certainly adds to the pattern, but it cannot determine any number that follows.

Despite this knowledge, all the players at the roulette table demonstrate a profound belief in the patterns they see, even James Bond, whose roulette practice was always to play "with the wheel, and only to turn against its previous pattern and start on a new tack after a zero had turned up" (Fleming, 1953, p. 59). One cannot ignore the pull of the history of the previous spins because those patterns contained within it are real. There really are patterns within the numbers. There really were five red numbers in the last five spins. However, the crucial insight provided by Bond and, as we shall see, by structuralism, is that these patterns are illusions because they are built on occurrences that are themselves completely random. No matter how complex or perfect the pattern that is created and observed within the numbers, the result of the next spin of the wheel remains perpetually out of reach, even for James Bond.

To see and not see: making patterns in perception

Pattern-making is a fundamental component of human experience. This claim is vividly demonstrated in an example from the work of neurologist Oliver Sacks (1995) who recounts the case of Virgil, a 50-year-old man who had been virtually blind since early childhood. Following two operations to remove the cataracts from his eyes, Virgil regained the ability to "see" after almost 40 years of blindness. Sacks (1995, p. 109) asks:

> What would vision be like in such a patient? Would it be "normal" from the moment vision was restored? This is what one might think at first. This is the commonsensical notion – that the eyes will be opened, the scales will fall from them, and (in the words of the New Testament) the blind man will "receive" sight.

When Virgil's bandages were removed, Sacks (1995, pp. 113-14) was able to offer to following answer:

> Finally, in mid-September, the day of surgery came. Virgil's right eye had its cataract removed, and a new lens implant was inserted; then the eye was bandaged, as is customary, for twenty-four hours of recovery. The following day, the bandage was removed, and Virgil's eye was finally exposed, without cover, to the world. The moment of truth had finally come.
>
> Or had it? The truth of the matter . . . was infinitely stranger. The dramatic moment stayed vacant, grew longer, sagged. No cry ("I can see!") burst from Virgil's lips. He seemed to be staring blankly, bewildered, without focusing, at the surgeon, who stood before him, still holding the bandages. Only when the surgeon spoke – saying "Well?" – did a look of recognition cross Virgil's face.
>
> Virgil told me later that in this first moment he had no idea what he was seeing. There was light, there was movement, there was color, all mixed up, all meaningless, a blur. Then out of the blur came a voice that said, "Well?" Then, and only then, he said, did he finally realize that this chaos of light and shadow was a face – and, indeed, the face of his surgeon.

It is very difficult to imagine what Virgil "saw" in those first few moments. The mechanics of Virgil's eyes enabled him to "see," but what he saw had no coherence, no pattern. His retina and optic nerve were active and transmitting impulses, but his brain could make no sense of them because it had no experience in "seeing" the patterns that determined how each of these discrete and particular sensations fit together in a coherent way. Sacks tells the story of how Virgil subsequently had to learn to see, of how perceptions had to be understood in the context of other perceptions. For example, Virgil was able to pick up details quite quickly. He could see an angle, an edge, a color, or a movement. But he lacked the ability to form a complex perception at a glance. Sacks (1995, p. 123) writes:

> This was one reason the cat, visually, was so puzzling: he would see a paw, the nose, the tail, an ear, but could not see all of them together, to see the cat as a whole.

Virgil's experience can be likened to the experience of being able to recognize each discrete word in this paragraph and then being unable to combine them in any coherent way. Virgil's experience demonstrates that the world a person sees and experiences is one that is created by the relation of stimuli to other stimuli and not some "pure" perception of the world as it really is.

A beautiful mind: when patterns become pathological

One group of people who put considerable effort and ingenuity into creating patterns are mathematicians. Number theory, for example, investigates the mutual relationships of common whole numbers, 1, 2, 3, 4, 5, and so on. Like the roulette player decoding the patterns in the history of the wheel's previous spins, the mathematician seeks patterns and relationships within number systems to seek the most elegant theorems and complex proofs which are all perfectly coherent within the symbolic and number systems from which they were derived.

However, problems can arise when one confuses the patterns within the numbers to be indicative of some real pattern out in the world. This confusion is represented in Ron Howard's (Howard and Grazer, 2002) movie version of Sylvia Nasar's (1998) *A Beautiful Mind*, the biography of John Nash, the Princeton mathematician and 1994 Nobel Prize winner. Nash is a mathematical genius who is able to identify and articulate patterns and relationships within number systems that others simply cannot see. Nasar (1998, p. 12) writes that:

> Nash's genius was of that mysterious variety more often associated with music and art than with the oldest of all sciences. It wasn't merely that his mind worked faster, that his memory was more retentive, or that his power of concentration was greater. The flashes of intuition were non-rational … Nash saw the vision first, constructing the laborious proofs long afterward. But even after he'd try to explain some astonishing result, the actual route he had taken remained a mystery to others who tried to follow his reasoning.

However, Nash took his ability to find patterns to pathological extremes. Nasar (1998, p. 167) writes that:

> All through his childhood, adolescence, and brilliant student career, Nash had seemed largely to live inside his own head, immune to the emotional forces that bind people together. His overriding interest was in patterns, not people, and his greatest need was making sense of the chaos within and without by employing, to the largest possible extent, the resources of his own powerful, fearless, fertile mind.

As suggested by Nasar and depicted by Howard, Nash has the ability to "see" patterns in everything around him, from the bad design of a colleague's tie to pointing out shapes in the stars to his future bride, Alicia. He sought to describe patterns in the movements of the players in a football scrimmage, pigeons scratching for seeds on the Princeton lawns, and even a mugger stealing a woman's purse on a Princeton street. Nasar (1998, p. 13) writes that Nash:

> wished to take life's decisions – whether to take the first elevator or wait for the next one, where to bank his money, what job to accept, whether to marry – into calculations of advantage and disadvantage, algorithms or mathematical rules divorced from emotion, convention, and tradition.

Nash's obsession for patterns became pathological when he sought "hidden codes" in the texts of newspapers and popular magazines. Nash claimed that:

> abstract powers from outer space, or perhaps it was foreign governments, were communicating with him through the *New York Times*. The messages were meant only for him, were encrypted and required close analysis. Others couldn't decode the messages (Nasar, 1998, p. 241).

For Nash, these patterns were perfectly real. They could be teased out of almost any phenomenon he chose to observe. However, in Nash's case, this ability to see patterns became pathological and he was committed as a paranoid schizophrenic.

Structuralism, patterns, and reality

The examples of Bond, Virgil, and Nash are introduced here to demonstrate the central claim of structuralism that there is a fundamental disconnect between the patterns that people construct and use and the belief that these constructs reflect some real pattern in

nature. Yet it is only through the connection of patterns and experience that we can make sense of our world at all. de Saussure (1983, p. 110) writes that:

> in itself, thought is like a swirling cloud, where no shape is intrinsically determinate. No ideas are established in advance, and nothing is distinct, before the introduction of linguistic structure.

Like the history of a session on the roulette table or John Nash's perception of secret messages in the *New York Times*, those patterns which seem so meaningful are created from elements that are themselves arbitrary; i.e. they have "no natural connexion in reality" (de Saussure, 1983, p. 69). This observation is the crucial insight on which structuralism rests. As de Saussure (1983, p. 68) notes:

> No one disputes the fact that linguistic signs are arbitrary... The principle stated above is the organizing principle for the whole of linguistics, considered as a science of language structure.

Indeed, the central concept in de Saussure's structuralist approach is the sign, which he defines as "the combination of a concept and a sound pattern" (de Saussure, 1983, p. 67). The link between a concept and a sound pattern is arbitrary. As de Saussure (1983, p. 67) describes:

> There is no internal connexion, for example, between the idea "sister" and the French sequence of sounds s-o-r which acts as its signal.

Structuralism suggests that the pathology of John Nash's belief in the reality of patterns represents only an extreme case of what each of us does every day. The experience of John Nash represents the paradigm of how each person constructs their perceptions and understanding of the world, each other, and his/her own thoughts.

The enterprise of structuralism is to discover how people make sense of the world and not to discover what the world is. Structuralism denies any final or absolute scientific truth. The truths made possible by our signs and their relationship with other signs are the only truths that can be articulated and understood. If a universal, unchanging reality is not accessible to human beings, then one cannot evaluate the truth of statements or beliefs by measuring how closely they approximate to this reality. It is akin to asking the roulette player how the patterns he/she has observed in the numbers relate to the outcome of the next spin of the wheel. The perception of reality is itself an encoding process. Perception involves making sense of data before us. It involves identifying significant differences and identifying units. Most importantly, it involves the perception of the relationships between these units so that they can be seen as a whole. It is in this sense that one must talk about reality as a social construct. When John Nash claimed that the *New York Times* contained coded messages from outer space, he really did "see" coded messages. For Nash, the patterns he saw were real, because that is all he could see. The fact that others did not see the same patterns does not invalidate the reality that Nash experienced. For example, Nasar (1998, p. 11) recounts a conversation between George Mackey, a Harvard Professor, and Nash:

> "How could you," began Mackey, "how could you, a mathematician, a man devoted to reason and logical proof . . . how could you believe that extraterrestrials are sending you messages? How could you believe that you are being recruited by aliens from outer space to save the world? How could you ?" Nash looked up at last and fixed Mackay with an unblinking stare as cool and dispassionate as that of any bird or snake. "Because," Nash said slowly in his soft,

reasonable southern drawl, as if talking to himself, "the ideas I had about supernatural beings came to me the same way that my mathematical ideas did. So I took them seriously"

Seeking patterns in language

Any particular number in roulette, taken by itself, has no value. For example, the wheel is spun and the number 24 comes up. The value of 24 only becomes apparent when it is placed in the context of the results of the previous spins, or the results of the spins that follow. The same is true of language. For example, consider the word: "information",

The term "information" has just appeared on this page. What does it mean?

To find an answer to that question, one has to seek the place of this term in the prevailing pattern of the other terms that comprise this text. The term "information" has been given a place within a context of sentences, paragraphs, and sections. The juxtaposition of "information" with these other units provides a sense of the term's place in a greater, overall scheme. It can be noted that "information" has propinquity with terms such as "library," "science," and "structuralism" and no propinquity with terms such as "vampires", "cat", and "envelope" (except in this sentence, of course!) This text is a method of ordering terms and for creating a proximity between certain terms and not others. This pattern of propinquity enables the recognition of which terms go with which other terms and, as a result, one is able to order, categorize, and organize these terms into a coherent structure (hence structuralism). To understand the text is not to understand each individual term separately. The text is understood by seeing how the terms are selected and then combined into a coherent whole.

All that being said, what does "information" mean? In this case, the term "information" is being used as an example to make a point about the nature of structure in language and meaning. Its meaning is quite irrelevant since any other term could have been chosen to make exactly the same point. You may agree that, in the context of this particular text, the meaning of "information" is not particularly important. Yet it can be acknowledged that the term refers to something even as it is recognized as being used as an example to make some other point. What does "information" mean in this sense? In answering this question, it is hard to point to something concrete. One might point to this page of text you are reading now, or a road sign, or a memo from your colleague, and say that is "information". One can agree and say, "yes, these are certainly *examples* of information. But what is it that all those individual examples have in common?" To answer this question, one cannot point to yet more concrete examples. We are forced to resort to definitions. *The Oxford English Dictionary* (1933, Volume V, p. 274) offers a good place to start: "information" is: "Knowledge communicated concerning some particular fact, subject, or event". This sentence certainly answers the question "what is information?" But now one is faced with another question: what is meant by the sentence "Knowledge communicated concerning some particular fact, subject, or event?" Instead of a single term, there is now a sentence composed of multiple terms each of which have their own definitions. So what do each of these terms mean? What is meant, for example, by the term "knowledge?" Again, referring to the dictionary: "knowledge" is "the fact of knowing a thing" and "familiarity gained by experience" among other senses. But just sticking with these two senses, one can ask what is meant by "familiarity" and "experience?" Every term in the definition itself has a definition also made up of other terms, and these terms have definitions, which are made up of terms, which have definitions, and

so forth. Instead of finding out what "information" is in some definitive way, one is confronted with a particular pattern among terms, of how one term (say "knowledge") is related to another term (say "information") and not to other terms (say "bread" or "pyramid"). Deriving the meaning of "information" resides in the ability to construct the right relationships among other symbols. To understand the term "library, one has to understand the system of terms of which it is an element. Without the system, the term "library" is meaningless.

From structuralism to post-structuralism via "The Library of Babel"

> An n number of possible languages use the same vocabulary; in some of them, the symbol library allows the correct definition a *ubiquitous and lasting system of hexagonal galleries*, but *library* is *bread* or *pyramid* or anything else, and these seven words which define it have another value. You who read me, are You sure of understanding my language (Borges, 1962, pp. 57-8)?

In the *Course in General Linguistics*, de Saussure (1983) focused almost exclusively on the general rules and codes of the language system which all of users must share if it is to be used as a means of communication. He gave little or no attention to how this system could serve the purpose of reference, i.e., how signs refer to the world of things, people, and events outside of language. The shortcomings of this approach led to the development of post-structualism.

For de Saussure, the underlying structure of rules and codes was the social part of language which could be studied with the law-like precision of a science because of its closed and limited nature. de Saussure held out the promise that the whole domain of meaning made possible by the language system could be systematically mapped. However, this could only be done if one ignored the realities of actual language use and the manner in which language and meaning shift and change over time. In order to view language as a closed and complete system, de Saussure was forced to study the state of language at one moment, as if it had stood still and he could halt the flow of language change. de Saussure (1983, p. 81) writes:

> The first thing which strikes one on studying linguistics facts is that the language user is unaware of their succession in time: he is dealing with a state. Hence the linguist who wishes to understand this state must rule out of consideration everything which brought that state about, and pay no attention to diachrony. Only by suppressing the past, can he enter into the mind of the language user. The intervention of history can only distort his judgement.

However, if one looks at the nature of actual language use, the idealization of a pure and unchanging "state" of language as envisaged by de Saussure becomes untenable. The interpretive nature of language can never produce a final moment of absolute truth. If de Saussure is able to describe scientifically the "state" of the language frozen at time *X*, what is the validity of that interpretation at time *Y*? Indeed, because the language state at time *Y* is different from the state at time *X*, how can the people at time *Y* understand the state of language at time *X* except through the language system they have available. Their understanding of language at time *X* will be one of interpretation rather than certitude. Any notion of a final meaning or interpretation is always endlessly put off since meaning is always contingent upon the state of the language and the state of the language is always changing over time. There is no one language state that can be devised that can oversee and describe all the others.

In his short story "The Library of Babel", Borges (1962, p. 52) describes a library in which an "indefinite and perhaps infinite number of hexagonal galleries" contain a potentially infinite number of texts expressing an infinite number of statements in an infinite number of languages. In some of these languages, the symbol "library" is defined as a "ubiquitous and lasting system of hexagonal galleries". This may seem a strange definition, but in the context of the story it is deemed correct by the narrator. However, statements in other languages contained within other texts might define "library" in terms of "bread", "pyramid", or any other term that also might be unpredictably defined.

In this Borgesian library, it follows that symbols can be connected in a potentially infinite number of ways all of which "make sense" according to the internal logics of particular language systems. Borges (1962, p. 57) writes:

> In truth, the Library includes all verbal structures, all variations permitted by the twenty-five orthographical symbols, but not a single example of absolute nonsense.

How is this so? In the infinite number of languages contained in the Library, every conceivable combination of symbols will make sense in one or more of them. As Borges' narrator reports:

> It is useless to observe that the best volume of the many hexagons under my administration is entitled *The Combed Thunderclap* and another *The Plaster Cramp* and another *Axaxaxas mlo*. These phrases, at first glance incoherent, can no doubt be justified in a cryptographical or allegorical manner; such a justification is verbal and, *ex hypothesi*, already figures in the Library (Borges, 1962, p. 57).

In a situation such as this, the question inevitably arises: how do we know which meaning of "library" is correct? Borges' (1962) narrator asks us: "You who read me, are You sure of understanding my language?" In Borges' Library, correct understanding of any symbol cannot be achieved by recourse to some independent or objective standard. Borges' narrator only has recourse to the texts and languages housed in the Library itself. Therefore, the meaning of the symbol "library" is entirely contingent on the language system in which it is being used. Are you, the reader, bringing to bear the appropriate language for understanding these symbols? Or not? And how would you know?

In his short story, Borges captures vividly the arbitrary nature of the relationships between symbols and, from this, the equally arbitrary relationship that holds between symbols and reality. In the Library of Babel, symbols are reality. There is nothing that exists beyond the Library. Even an understanding of the Library itself is contained within its texts, as Borges' narrator laments:

> it was also hoped that a clarification of humanity's basic mysteries – the origin of the Library and of time – might be found. It is verisimilar that these grave mysteries could be explained in words: if the language of philosophers is not sufficient, the multiform Library will have produced the unprecedented language required, with its vocabularies and grammars (Borges, 1962, p. 55).

Borges brings to life in the words and desperation of his narrator the proposition that the meaning of a symbol such as "library" is not determined by a one-to-one correspondence with a concrete object or some aspect of reality to which it refers. "Library" can only derive a meaning by virtue of the context of other symbols structured as a particular language. To understand the symbol "library" is to

understand the constellation of other terms (e.g. "hexagonal galleries", "bread", or "pyramid") of which it is a part. As this constellation changes, so does the meaning of "library." It follows that meanings are never fixed but are always contingent on shifting and arbitrary systems of relationships defined by particular language systems. This is the hell faced by Borges' narrator in the Library of Babel, where "to speak is to fall into tautology" (Borges, 1962, p. 57) and where the narrator's own story is considered to be a "wordy and useless epistle" which "already exists in one of the thirty volumes of the five shelves of one of the innumerable hexagons – and its refutation" (Borges, 1962, p. 57). The situation of hell is the place embraced and explored by post-structuralism.

The experience of Borges' narrator in the Library of Babel can be extended to any account of language offered by structuralism. Any such account is written and bound by the constraints of language and can therefore also be subject to a structuralist analysis. After all, de Saussure's theory of language is itself a particular pattern of signs created within language. It is contained within a book which, in turn, is contained within the library. de Saussure cannot detach himself from the language system he is attempting to make sense of because the language he uses to make sense of it is also a part of, and made possible by, that very system. The situation of de Saussure using patterns in language to describe the nature of patterns in language is akin to the narrator's situation in Borges' (1962) "Library of Babel". The narrator is forced to use one of the n languages in the library to make sense of the nature of the library. But why is the language of the narrator (or de Saussure) any more objective, accurate, or privileged than any other? And could not the language of the narrator (or de Saussure) be subject to a structuralist analysis using any one of the infinite number of languages contained in the library? Borges' library becomes the world of post-structuralism, where all meanings and all accounts are contingent upon arbitrary patterns of signs rather than some independent and objectively verifiable reference point.

Post-structuralism repudiates the notion that there are enduring truths that can be invoked with certainty in the process of signification. All truths are fully contextual and the result of the relationship between signs including the main propositions of structuralism! These propositions cannot be considered true or false. They can only come to "make sense" in the context of other propositions and signs. Indeed, this text you are reading about the propositions of structuralism can be subject to a structuralist account. How do you make sense of this text? What is the system of signs in which it comes to make sense? What are the notions of truth and objectivity it constructs in its discourse? Of course, once such an analysis is written, that too can be subject to a structuralist analysis, and so on and so on, just like tracing the definitions of words in the dictionary. If language cannot be explained by the discovery of a universal structure, how is the post-structuralism to proceed in making sense of language? One answer is to return to signs as concrete and material entities, and to describe the relationships between these. This approach is exemplified by the work of Michel Foucault.

Michel Foucault and post-structuralism

The discursive formation

Like the structuralism of de Saussure, Michel Foucault was concerned with the principles by which elements can be organized together to produce coherent and

meaningful patterns. However, whereas de Saussure would seek the value of such patterns with respect to an idealized language system, Foucault always seeks to describe concrete relationships that can be described between concrete items. Foucault describes arrangements of this kind as "discursive formations". Simply put, a discursive formation refers to the ways in which a collection of texts are organized with respect to each other.

Consider a familiar image: a collection of books arranged on the shelves of an academic library. One might ask: "Why are the books arranged this way and not another?" An academic librarian would say that the books are arranged according to standardized classification systems, which group materials by subject. In the Library of Congress classification scheme, for example, books about philosophy are grouped under the letter B, language and literature under the letter P, and so on. When one understands this idea then one intuitively understands the idea of a discursive formation. To draw on Foucault's (1972, p. 38) words, "whenever, between objects, types of statement, concepts, or thematic choices, one can define a regularity (an order . . .), we will say, for the sake of convenience, that we are dealing with a *discursive formation*".

A discursive formation is not some idealized linguistic system of the kind proposed by de Saussure. For Foucault, discursive formations are real and concrete, just like the arrangement of books on a library shelf or the sentences in this article. Discursive formations are entities to be seen, touched, and experienced because they are composed of material objects, such as books. It follows, then, that because discursive formations are material, they have material effects.

Imagine standing in front of the library bookshelf. Just by looking at the titles on the spines, one can see how the books cluster together. One can see which books belong together and which do not, which books seem to form the heart of the discursive formation and those which reside on the margins. Moving along the shelves, it is possible to see books which tend to bleed over into other classifications and which straddle multiple discursive formations. One can physically and sensually experience the domain of a discursive formation by following the books along the shelves, having one's fingers trail along the spines as one scans the call numbers, feeling the depth and complexity of the collection by the number of the volumes and the variety of its titles, of reaching those points that feel like state borders or national boundaries, those points where one subject ends and another begins, or those magical places where one subject has morphed into another and you did not even notice. Such is the life of a discursive formation; the arrangement of real books on real library shelves giving rise to real experiences. Foucault proposed his "archaeology of knowledge" as a means to raise the discursive formation itself as a legitimate object of inquiry. Foucault (1972, p. 22) writes:

> We must . . . question those divisions or groupings with which we have become so familiar . . . These divisions – whether our own, or those contemporary with the discourse under discussion – are always themselves reflexive categories, principles of classification, normative rules, institutionalized types; they, in turn, are facts of discourse that deserve to be analyzed beside others.

Foucault's ideas should be readily understood by the LIS scholar and practitioner. Consider the choices made by a cataloger when assigning a subject heading, a call number, and a place on the shelf to a particular book. How does the cataloger do this?

What is the nature of the pre-existing subjects (discursive formations) to which a new book can be assigned? What are the rules by which a book is assigned to "Philosophy" and not to "History" or "Language?" Questions like these raise the same kinds of questions that Foucault explores: what are these divisions or groupings that have become so familiar? Foucault (1972, p. 22) wants to address these principles of classification and treat them as "facts of discourse that deserve to be analyzed beside others". Foucault does not raise questions about the contents of any particular book on the shelf. Instead he asks: Why is it arranged this way? Why is it placed alongside these other books, and not others? Why does the text belong in "Philosophy" and not "Art?" Ultimately, Foucault wishes to address questions such as the following: Why do we have these divisions of knowledge – Science, Art, Philosophy, and so on? Where did these divisions come from? What are the grounds for their legitimacy? How might they be challenged and transgressed?

The statement

In Foucault's description of discursive formations, the central unit is the statement. A statement is a material element in a discursive formation. It can be a word, a sentence, a document, or a whole book. For example, this article you are reading right now is a statement. Statements do not refer to concepts or ideas in the mind of a person. Forget about what this article is about or what it says or whether you understand it, agree with it, or consider it nonsense. In Foucault's terms, this article is a statement because it appears in the context of a particular discursive formation. In other words, it appears in this issue of the *Journal of Documentation*, along with other kinds of statements, such as the other articles, book reviews, commentary, and instructions to the authors. For Foucault, all of these statements are valuable and interesting because, together, they make up the discursive formation of this issue. The important thing for Foucault is the fact that this article/statement has appeared in this setting, and not some other, and that it stands in a certain relationship to those other statements around it. Foucault is not interested in interpreting whether this article is accurate or not, or even whether or not it is true. Foucault's analysis of the statement constitutes a perspective for the description of the conditions in which texts appear.

Foucault is also interested in what the appearance of the statement does. For example, you, the reader, have read this article. Now what? What will happen as a result? Many things might happen. One possibility is that you will be inspired to use and cite this paper in work you are doing. The appearance of this paper in the *Journal of Documentation* has the potential to contribute to the appearance of another article, another statement. You may quote sections of it, you may critique the central thesis, you may be inspired to read more of Foucault's works. You may set this article as a required reading in your class syllabus. You may discuss it with your colleagues. This article/statement has the potential to have a significant impact on the production and appearance of other material statements. It becomes an item in circulation that impacts the statements it comes into contact with. Foucault (1988, pp. 333-4) notes that his statements have the potential to "land in unexpected places and form shapes that I had never thought of". They are able to do this because statements are real; they have a material existence and, as such, have the potential to physically circulate among readers. The readers, in turn, have the capacity to "manipulate, use, transform,

exchange, combine, decompose, and recompose, and possibly destroy" (Foucault, 1972, p. 105) those statements. As Foucault (1972, p. 105) describes:

> Instead of being something said once and for all ... the statement, as it emerges in its materiality, appears with a status, enters various networks and various fields of use, is subjected to transferences or modifications, is integrated into operations and strategies in which its identity is maintained or effaced. Thus the statement circulates, is used, disappears, allows or prevents the realization of a desire, serves or resists various interests, participates in challenge and struggle, and becomes a theme of appropriation or rivalry.

Again, consider this article you are reading. As a material statement, it has the potential to appear in many different places under the eyes of many different readers. It may be deployed in many different discursive formations. Here is Foucault being read in the context of LIS scholarship, for example. This article/statement has the potential to produce entirely new statements (books, articles, letters, syllabi). These statements, in their turn, will enter into discursive circulation and also have the potential to generate many more new statements, and so on *ad infinitum*. This discursive engine, if you like, generates the networks that constitute the discursive formation.

The post-structuralist library

The library and the labyrinth

In Foucault's view, statements do not contain knowledge. Rather, taken together in arrangements of other statements, they are generative of knowledge. The library has a key role to play in such a conception because it institutionalizes the arrangement of texts/statements that provide the appropriate spaces in which new knowledge claims can be located and given meaning. Truth is not only discovered in the library through the location of a particular text, but it is also made possible by their arrangements and in the "spaces" which these arrangements make possible. Radford (1991) has argued that to comprehend the nature of a discipline such as psychology, for example, it is not enough simply to collate the finite number of facts that psychologists claim to have discovered, but to immerse oneself in the discourse of psychology, to grasp the patterns and arrangements of its knowledge claims, its systems of constraints and legitimation, and to locate one's own discourse within it. The arrangement of texts becomes the basis for the possibility of new texts and hence new knowledge.

Foucault's material and practice-based view of knowledge provides an alternative way of speaking about and understanding the role of the library. The discursive formations of the library represent paths that link one statement with others in substantial ways, much like a language connects signs. However, Foucault, like Borges (1962) in his "The Library of Babel", reminds us that there need not be just one system of relationships. There can be many, none of which are necessarily predictable in advance. Like Borges' Library of Babel, the discursive formations of the library permit a potentially infinite number of ways in which statements can be meaningfully combined. The library is not a mere storehouse of texts. It is a labyrinth where "every point can be connected with every other point, and, where the connections are not yet designed, they are, however, conceivable and designable. A net is an unlimited territory" (Eco, 1984, p. 81). The individual text gains its value with respect to its place in the network, or a multitude of networks, and not as the vessel containing some discrete knowledge put there by its author. Similarly, Foucault (1972, p. 23) argues that:

> the frontiers of a book are never clear cut: beyond the title, the first lines, and the last full stop, beyond its internal configuration and its autonomous form, it is caught up in a system of references to other books, other texts, other sentences: it is a node within a network.

A library user, then, engages with the library system in an active manner, searching stacks, electronic and paper catalogs and indexes for connections and existing patterns within the discursive formation. The library experience is much more than simply locating discrete pieces of information (see also Frohmann, 2000). The activity of conducting literature searches becomes the individual's attempt to locate their knowledge claims within an existing order of knowledge claims. Foucault (1977, pp. 90-91) argues that such knowledge:

> derives from words spoken in the past, exact recensions, the amassing of minute facts, monuments reduced to infinitesimal fragments, and the reproductions of reproductions.

The production of commentaries, critiques, arguments, and debates becomes the act of validating or questioning those locations within the limits of the prevailing arrangement.

The library makes the creation of new knowledge possible at its most fundamental level. One stands awed in the labyrinth of the hushed library because of the knowledge that can be discovered through its potential for new connections. One stands hushed in the presence of that which the library makes possible, as well as that which the library contains. Foucault (1977) makes this point through the metaphor of the fantasy, which is usually regarded as standing in opposition to the rigorous systems of organization imposed by the library. But within the limits of this arrangement, Foucault (1977, p. 90) posits the presence of an infinite number of spaces "in the interval between books". In such spaces resides the possibility of impossible worlds; worlds other than the objective world constituted in the discursive arrangements of science:

> fantasies are carefully deployed in the hushed library, with its columns of books, with its titles aligned on shelves to form a tight enclosure, but within confines that also liberate impossible worlds … The imaginary is not formed in opposition to reality as its denial or compensation; it grows among signs, from book to book, in the interstice of repetitions and commentaries; it is born and takes place in the interval between books. It is a phenomenon of the library (Foucault, 1977, pp. 90-1).

For Foucault, the fantasia of the library is the experience of the labyrinth; of seeking connections between texts as well as their contents. The practices of the library institutionalize particular arrangements of texts, but Foucault argues that one can work within these practices to create new labyrinths, new perspectives, and ultimately, new worlds. The library becomes an instrument of possibility rather than a place where possibility seems exhausted. The image of the library as an impersonal collection of silent and dusty texts containing the sum total of the knowledge of the world is challenged by a more dynamic image, in which users immerse themselves within the crevices and spaces between texts, forming connections, and making discoveries far more profound than simply collecting specific facts.

This article/statement is the product of an arrangement of statements made possible by the library and is made possible by the unique combination of a collection of existing statements. It has drawn on and combined texts/statements by Borges, Fleming, Nasar, and Sacks as well as the work of de Saussure and Foucault. The

library is not a backdrop to this article as a separate realm but is an integral part of it. Whereas once the library contained the book, now the book contains the library. This article "dreams other books … books that are taken up, fragmented, displaced, combined, lost" (Foucault, 1977, p. 92). This article:

> may appear as merely another new book to be shelved alongside all the others, but it serves, in actuality, to extend the space that existing books can occupy. It recovers other books; it hides and displays them and, in a single movement, it causes them to glitter and disappear (Foucault, 1977, pp. 91-2).

Defining the library in the post-structuralist world

Michel Foucault devoted much of his life's work to the description and critique of western civilization's apparent respect and honor for discourse. Much has been written about the way Foucault deliberately skirts around giving a definitive account of the concept (see Blair, 1987; Frank, 1992; Radford, 1997). Yet, on closer reflection, it becomes clear that Foucault's unwillingness to give a single definition of "discourse" follows from the post-structuralist nature of his theory. To define "discourse" would mean to relate it to other terms, which themselves require definitions, and so on. Describing this pattern would be the path of the structuralist and this is not the path Foucault sought to follow. Foucault claims it is not in the nature of discourse to be able to give a single and correct definition of any word, including the word "discourse." He recognizes that a word's meaning depends on how it is used and the context in which that usage takes place. Thus Foucault (1972, p. 80) writes that:

> Instead of gradually reducing the rather fluctuating meaning of the word "discourse," I believe that I have in fact added to its meanings.

Foucault (1972, p. 80) asks "have I not allowed this same word 'discourse' … to vary as I shifted my analysis or its point of application?". What happens when we apply Foucault's principle to the library?

In its modern usage, we know that "library" is not used to refer to "hexagonal galleries", "bread", or "pyramid", but to a "place set apart to contain books for reading, study, or reference" (*The Oxford English Dictionary*, 1933, Vol. VI, p. 242). A library might be a room or a set of rooms "ordinarily belonging to an English house above a certain level of size and pretension" (*The Oxford English Dictionary*, 1933, Vol. VI, p. 242), or a building containing a collection of books "for the use of the public" (*The Oxford English Dictionary*, 1933, Vol. VI, p. 242). In the public sphere, the library is "charged with the care of a collection of books, and the duty of rendering the books accessible to those who require to use them" (*The Oxford English Dictionary*, 1933, Vol. VI, p. 242).

Little has changed in this definition since 1933. The *ALA Glossary of Library and Information Science* defines the goal of the library as that of providing:

> a collection of materials organized to provide physical, bibliographic, and intellectual access to a target group (Young, 1983, p. 130).

The reference to English houses above a "certain level of size and pretension" is no longer relevant. The word "book" is replaced by "materials" to acknowledge the fact that a library stores much more than books and has entered into the era of digital libraries and the increasing use of electronic texts and multimedia. The term "public" is replaced by "target group." But the changes in terminology do not detract from the

fact that the library is defined in pragmatic terms as a place where books and electronic texts are collected, organized, stored, and made available to those who need them. In this sense, *The Oxford English Dictionary*'s definition of "library" is consistent with Borges' narrator's definition of library: both refer to the library in terms of its characteristics as a physical space, whether it be a set of rooms belonging to an English house or a "ubiquitous and lasting system of hexagonal galleries" (Borges, 1962, p. 58).

All of this seems to be common sense. Yet it is also a very limited and limiting view of the library. As Borges showed, the standard definition and understanding of the "library" is premised on the connection of terms such as "place" and "books" and not with terms such as "bread" and "pyramid". However, Borges' story also suggests that things could be otherwise in our understanding of "the library". If the library-as-place is considered as the product of just one of the n languages in the Library of Babel, it is possible to imagine other languages where the term "library" takes on a very different role and identity. Thought experiments such as Borges' represent a gateway into the domains of structuralism and post-structuralism and their relationship to one's understanding of "the library". If one can open the mind to the possibility of considering "the library" purely as a linguistic term which may have different values in different linguistic systems, then one will be seeing the library from a structuralist and post-structuralist perspective.

Post-structuralist tendencies in LIS

The definition of "librarianship" follows from the definition of the library as a place. As Budd (2001, p. 1) describes, librarianship: "seeks to provide information and reading materials to people through the purposeful collection of books, periodicals and other media" and offer "provision of access to information in various formats". The LIS field is charged with studying, theorizing, and, ultimately addressing these concerns in order to "solve definite, practical problems and deal with specific, concrete phenomena" (Floridi, 2002, p. 46). For example, issues such as what are the most effective ways of organizing a collection of books and of making them accessible to potential users?

Yet the very nature of Floridi's question and others like it inevitably thrusts the LIS into the realms of structuralism and post-structuralism. LIS simply cannot avoid the issues raised in these two approaches to knowledge. The library is in the business of organizing texts and, in doing so, in the business of creating discursive formations and patterns. In LIS, this is known as knowledge organization. Tools such as classification schedules (e.g. the Library of Congress (2004) classification system and the Dewey Decimal Classification System (Dewey *et al.*, 2003)), stringent and precise cataloging rules (e.g. American Library Association, 2002), standardized subject headings/controlled vocabularies, hierarchical subject trees, and a variety of indexing schemes have been created that seek to impose patterns on the potential chaos of human knowledge (Blake, 2002). What are the implications of tools such as these for the means by which our realities are created and understood?

Knowledge organization tools have predominantly operated on a traditional "exact match" paradigm that seeks to provide a unique identifier for each document (i.e. classification number or index term) and a limited number of identifiers (standardized subject headings) and then to match a given query to documents using Boolean logic

models. Yet it is indexers who must impose their subjective judgments in both creating new and observing pre-existing discursive patterns and then designating appropriate classification numbers and subject headings. The field has increasingly acknowledged that such classification procedures should be viewed as an art rather than an exact science because there is no fixed reality to which any classification system can correspond. The only reality we have is the reality given to us by our patterns and structures.

Post-structuralist tendencies in LIS can also be seen in the newer paradigm of "best match" that focuses on relevance and attends to issues of context and complexity (see Ingerwersen and Willett, 1995). Examples of this approach can be seen in the development of the Dublin Core Metadata Initiative that seeks a more flexible alternative to the traditional *Anglo-American Cataloging Rules* (American Library Association, 2002) for assigning descriptors to information resources such as web pages (see Caplan, 2003). Another example is seen in databases and indexes that provide access to texts through the use of keywords and natural language rather than subject headings and that rank results according to relevance. The post-structuralist approach can also be seen in internet search engines such as Google (http://www.google.com), which uses complex algorithms to determine relevance. Google has become so incredibly successful that it has "changed the way the world finds things out" (Levy, 2004, p. 50). With over 200 million searches per day (Levy, 2004, p. 50), the phenomenal success of Google is drawing attention to questions about why people have opted increasingly to use such post-structuralist tools rather than the traditional library systems (which are more difficult to navigate, seem mysterious to the uninitiated, and require more effort) for locating desired texts (see Tenopir, 2004).

It is hoped that this brief introduction to structuralism and post-structuralism will call attention to issues surrounding institutionalized LIS practices for organizing knowledge. These practices include classification, catalogs, and indexing systems. They also include the privileging of certain texts (e.g. reference materials and special collections, usually removed from the regular stacks) (see also Radford and Radford 1997). LIS practitioners may not think of the assignment of classification numbers, subject headings, and to the designations of certain texts as "reference" materials, as arbitrary and as having impact on knowledge use and creation. They may take for granted the discursive formations they have created, and perhaps be unaware of, or may discredit, the potential of alternative formations (for example the loose subject partitioning of texts in bookstores that users may find intuitive and easier to navigate than traditional library stacks). Although they might be intellectually aware that the traditional knowledge organization systems are artificial, their use has become so ingrained within the profession that it is difficult to perceive that they are imposed from without.

In calling attention to these structures through the larger discussion of the work of de Saussure and Foucault, above, one can not only see the library from a structuralist and post-structuralist perspective, but can also see the possibility of new avenues of inquiry for the LIS field. The approaches of these theorists represent gateways for LIS into the domains of structuralism and post-structuralism and invitations to extending ways of conceptualizing "the library," its role, identity, and practice in an increasingly post-structuralist world.

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